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PLASTIC CLOSURE

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ABSTRACT OF THE DISCLOSURE

A single-piece molded plastic closure adapted to be mounted on a spice can and having a segmental spoon opening closed by a flap integrally hinged to one side of the opening, and a segmental sifter opening similarly closed by an integrally hinged flap. Depending from the underside of each flap is a rib that interfits with the side surfaces of the respective opening from one end of the hinge to the other, the rib on the sifter flap having sifter openings therein. Each flap is latched releasably in the closed position by interfitting abutments, and is sealed by a resiliently flexible fin of plastic molded on the side surface of the opening, completely around the rib, and inclined downwardly and inwardly for interfering engagement with the rib during closing motion of the flap. Finlike compressible extensions on the ends of the ribs abut against alined, opposed surfaces on the straight sides of the openings to form pressure seals from the hinges downwardly to levels below the fin seals, and clearances are formed between the edges of the ribs adjacent the hinges and the opposed edge surfaces of the openings and covered by wings on the flaps.

Background of the invention

This invention relates to a single-piece molded plastic closure for a spice can, of the same type that is disclosed in my prior patent, No. 3,322,208, in which the closure is formed with one or more openings normally closed by flaps integrally hinged on the closure for swinging between open and closed positions, two such openings being preferred so that the contents may be dispensed either with a spoon inserted into the can through one opening or by shaking the contents out of the can through a sifter on the flap of the other opening. In the aforesaid patent, the openings are sealed by ribs depending from the flaps and having outer surfaces pressed into tight sealing engagement with the edge surfaces defining the openings when the flaps are closed. It has been found, however, that this manner of sealing requires careful control of dimensions in molding and can result in problems after a set of molding dies has been in use for a substantial period of time.

Summary of the invention

The primary object of the present invention is to improve the sealing characteristics of the patented closure by eliminating the need for precise control of dimensions of sealing elements during molding, thereby increasing the useful service life of dies, simplifying die maintenance and improving the sealing characteristics of the closure. Another object is to seal the openings in the closure with novel resilient sealing elements molded integrally with the remainder of the single-piece closure and operable to provide a complete peripheral seal around the rib on each closure that remains effective despite dimensional variations resulting from wear in the dies or inherent in molding techniques. A more detailed object is to provide a thin and laterally yieldable sealing fin positionad on the surfaces of the closure defining the opening for interfering,

sealing engagement with the rib from one end of the latter to the other, regardless of normal variations in the positions and dimensions of the fin and the rib, and to form novel pressure seals between the ends of the ribs and the adjacent side of the opening for completing the full peripheral seal. Another object is to leave substantial clearances between the rib and the side surfaces adjacent each hinge for facilitating die maintenance without danger of leakage, and to cover such clearances in a novel manner to avoid detracting from the appearance of the closure.

Other objects and advantages of the invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings.

Brief description of the drawings

FIGURE 1 is a top perspective view of a closure embodying the novel features of the present invention shown with the closure flaps in the fully open positions in which they are molded.

FIG. 2 is a cross-sectional view taken substantially along the line **2—2** of FIG. 1 in the direction indicated by the arrows.

FIG. 3 is an enlarged view similar to FIG. 2 with the flaps in the closed positions.

FIG. 4 is an enlarged fragmentary cross-sectional view taken substantially along the line **4—4** of FIG. 3, and illustrating the seals at the ends of the ribs.

FIG. 5 is an enlarged fragmentary cross-section taken substantially along the line **5—5** of FIG. 2.

FIG. 6 is an enlarged fragmentary cross-section taken substantially along the line **6—6** of FIG. 3.

FIG. 7 is an enlarged fragmentary cross-section taken substantially along the line **7—7** of FIG. 2.

FIG. 8 is an enlarged fragmentary plan view showing part of the top of the closure at one end of the hinge of the spoon-hole flap.

FIG. 9 is a fragmentary cross-section taken substantially along the line **9—9** of FIG. 8.

As shown in the drawings for purposes of illustration, the invention is embodied in a single-piece, molded plastic closure or cover for a conventional spice can (not shown) of generally rectangular cross-section, the closure having a flat top **10** defining at least one dispensing opening **11** (FIG. 1) normally closed by a hinged flap **12**, and also having depending inner and outer skirts **13** and **14** defining a peripheral groove **15** for telescoping and interlocking with the hemmed upper end of the can to mount the closure on the can. Preferably, the opening **11** is a spoon hole that is shaped and sized to admit a spoon into the can, and a second opening **17** is formed in the top and normally closed by a hinged flap **18** with a sifter **19** on its underside formed with a series of holes **20** that are exposed when the flap is raised to its open position so that the contents of the can may be dispensed either by spooning through the spoon hole or by shaking small quantities of the contents out through the sifter holes.

While the openings **11** and **17** may have various shapes, each herein is defined along one side by a straight side surface **21**, **22** and along the remaining sides by a substantially arcuate side surface **23**, **24** whereby the openings are generally segmental in shape, the surfaces of both openings being upright and generally at right angles with the plane of the top **10**. The straight side **21** of the spoon hole **11** lies along one elongated side of the top, herein referred to as the rear side, with the flap **12** integrally joined to the top along the rear side by an integral web **25** forming the hinge. The straight side **22** of the sifter opening **17** extends across the top adjacent one end of the spoon hole, and the flap **18** is integrally joined to the top along this straight side by a similar web **27** forming the other hinge.